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CDC Health Advisory

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Cases of *Vibrio vulnificus* identified among Hurricane Katrina evacuees

To date, seven people, in the area affected by Hurricane Katrina, have been reported to be ill from the bacterial disease, *Vibrio vulnificus*. Four have died. The first cases were reported by the Mississippi Department of Health. *V. vulnificus* can cause an infection of the skin when open wounds are exposed to warm seawater. People at greatest risk for illness from *V. vulnificus* are those with weakened immune systems and the elderly. Because *V. vulnificus* is a bacterium in the same family as the bacteria that causes cholera, some media reports have confused the two pathogens.

As part of the current investigation, CDC and other response agencies are working with health departments in affected states to help identify persons who might be at increased risk for *V. vulnificus* and recommend appropriate treatment for them.

What is *Vibrio vulnificus*?

Vibrio vulnificus is a bacterium that is a rare cause of illness in the United States. The illness is very different from cholera, which is caused by different bacteria, called *Vibrio cholerae*. *V. vulnificus* infections do not spread directly from one person to another, and are a serious health threat predominantly to persons with underlying illness, such as liver disease or a compromised immune system. The organism is a natural inhabitant of warm coastal waters. Infection can occur after a wound is exposed to warm coastal waters where the *V. vulnificus* organism is growing. Infection may also be acquired by eating raw or undercooked seafood from those waters.

CDC receives reports of over 400 *Vibrio* illnesses each year. Of those, about 90 per year are due to *V. vulnificus*. Most *Vibrio vulnificus* illness occurs during warm weather months.

Symptoms of infection with *V. vulnificus*

- Acute illness, with a rapid decline in health following exposure
- If exposed by contamination of an open wound, increasing swelling, redness, and pain at the site of the wound
- Illness typically begins within 1-3 days of exposure, but begins as late as 7 days after exposure for a small percentage of cases
- Fever
- Swelling and redness of skin on arms or legs, with blood-tinged blisters
- Low blood pressure and shock

By contrast, the symptoms of cholera are profuse watery diarrhea, vomiting, cramps, and low-grade fever.

Illness caused by *V. vulnificus*

Wound infections may start as redness and swelling at the site of the wound that then can progress to affect the whole body. *V. vulnificus* typically cause a severe and life-threatening

illness characterized by fever and chills, decreased blood pressure (septic shock), and blood-tinged blistering skin lesions (hemorrhagic bullae). Overall, *V. vulnificus* infections are fatal about 40% of the time. Wound infections with *V. vulnificus* are fatal about 20% of the time, and aggressive surgical treatment can prevent death.

How people become infected

V. vulnificus is found in oysters and other shellfish in warm coastal waters during the summer months. Since it is naturally found in warm marine waters, people with open wounds can be exposed to *V. vulnificus* through direct contact with seawater, shellfish, and marine wildlife. There is no evidence for person-to-person transmission of *V. vulnificus*.

Persons who have immunocompromising conditions, and, especially those with chronic liver disease, are particularly at risk for *V. vulnificus* infection when they eat raw or undercooked seafood, particularly shellfish harvested from the Gulf of Mexico, or if they bathe a cut or scrape in marine waters. About three-quarters of patients with *Vibrio vulnificus* infections have known underlying hepatic disease or other immunocompromising illness. Otherwise healthy persons are at much lower risk of *Vibrio vulnificus* infection.

Concerns in hurricane-affected areas

Persons with immunocompromising conditions and especially those with chronic liver disease should avoid exposure of open wounds or broken skin to warm salt or brackish water, and avoid consuming undercooked shellfish harvested from such waters. More information on caring for wounds may be found in the CDC document [Emergency Wound Management for Hurricane Professionals](#).

After a coastal flood disaster, large numbers of persons with illnesses that affect their resistance to infection may be exposed to seawater. Injury prevention is especially important in high risk persons. Wounds exposed to seawater should be washed with soap and water as soon as possible, infected wounds should be evaluated by a doctor, and clinicians should aggressively monitor these wounds.

Diagnosis

V. vulnificus infection is diagnosed by microbiologic culture of the wound, by blood cultures, or by stool culture in the case of patients who consumed raw or undercooked seafood.

Treatment

V. vulnificus infection is treated with antibiotics. When this infection is suspected, treatment with a combination of a third-generation cephalosporin (e.g., ceftazidime) and doxycycline is recommended. *V. vulnificus* wound infections should be treated with aggressive attention to the wound site; amputation of the affected limb is sometimes necessary.

Recovery

V. vulnificus infection is an acute illness, and those who recover should not expect long-term consequences.

DHEC Contact Information for Reportable Diseases and Reporting Requirements

Reporting of individual cases of *V. vulnificus* is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2004 List of Reportable Conditions available at: http://www.scdhec.gov/health/disease/docs/reportable_conditions.pdf

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

Additional information

Information about *Vibrio* surveillance may be found at
http://www.cdc.gov/foodborneoutbreaks/vibrio_sum.htm

Public Health Offices

Mail or call reports to the Epidemiology/Disease Report Office in the appropriate county listed below.

Region 1

(Anderson, Oconee)

220 McGee Road
Anderson, SC 29625
Phone: (864) 231-1966
Fax: (864) 260-5623
Nights / Weekends: 1-(866)-298-4442

(Abbeville, Edgefield, Greenwood, Laurens, McCormick, Saluda)

PO Box 3227
1736 S. Main Street
Greenwood, SC 29646
Phone: 1-888-218-5475
Fax: (864) 942-3690
Nights / Weekends: 1-800-420-1915

Region 2

(Cherokee, Spartanburg, Union)

PO Box 4217
151 E. Wood Street
Spartanburg, SC 29305-4217
Phone: (864) 596-2227 ext. 210
Fax: (864) 596-3443
Nights / Weekends: (864) 809-3825

(Greenville, Pickens)

PO Box 2507
200 University Ridge
Greenville, SC 29602-2507
Phone: (864) 282-4139
Fax: (864) 282-4373
Nights / Weekends: (864) 460-5355 or
1-800-993-1186

Region 3

(Chester, Lancaster, York)

PO Box 817
1833 Pageland Highway
Lancaster, SC 29721
Phone: (803) 286-9948
Fax: (803) 286-5418
Nights / Weekends: 1-(866)-867-3886 or
1-(888)-739-0748

(Fairfield, Lexington, Newberry, Richland)

2000 Hampton Street
Columbia, SC 29204
Phone: (803) 576-2749
Fax: (803) 576-2993
Nights / Weekends: (803) 304-4252

Region 4

(Clarendon, Kershaw, Lee, Sumter)

PO Box 1628
105 North Magnolia Street
Sumter, SC 29150
Phone: (803) 773-5511
Fax: (803) 773-6366
Nights / Weekends: 1-(877)-831-4647

(Chesterfield, Darlington, Dillon, Florence, Marlboro, Marion)

145 E. Cheves Street
Florence, SC 29506
Phone: (843) 661-4830
Fax: (843) 661-4859
Nights / Weekends: (843) 660-8145

Region 5

(Aiken, Allendale, Barnwell)

1680 Richland Avenue, W. Suite 40
Aiken, SC 29801
Phone: (803) 642-1618
Fax: (803) 643-8386
Nights / Weekends: (803) 827-8668 or
1-800-614-1519

Region 5 (cont.)

(Bamberg, Calhoun, Orangeburg)

PO Box 1126
1550 Carolina Avenue
Orangeburg, SC 29116
Phone: (803) 533-7199
Fax: (803) 536-9118
Nights / Weekends: (803) 954-8513

Region 6

(Georgetown, Horry, Williamsburg)

2830 Oak Street
Conway, SC 29526-4560
Phone: (843) 365-3126
Fax: (843) 365-3153
Nights / Weekends: (843) 381-6710

Region 7

(Berkeley, Charleston, Dorchester)

4050 Bridge View Drive, Suite 600
N. Charleston, SC 29405
Phone: 843-746-3806
Fax: (843) 746-3851
Nights / Weekends: (843) 219-8470

Region 8

(Beaufort, Colleton, Hampton, Jasper)

1235 Lady's Island Drive
Port Royal, SC 29935
Phone: (843) 525-7603
Fax: (843) 525-7621
Nights / Weekends: 1-800-614-4698

Bureau of Disease Control

Acute Disease Epidemiology Division
1751 Calhoun Street
Box 101106
Columbia, SC
Phone: (803) 898-0861
Fax: (803) 898-0897
Nights / Weekends: 1-888-847-0902

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Health Alert conveys the highest level of importance; warrants immediate action or attention.

Health Advisory provides important information for a specific incident or situation; may not require immediate action.

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